

Climate Change Planning Tools for First Nations

August 2006

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Guidebook 2

Climate Change Impacts in the Community

Climate Change Planning Tools for First Nations Guidebook List

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These Guidebooks were created by the Centre for Indigenous Environmental Resources in partnership with Sioux Valley Dakota Nation in Manitoba and Peter Ballantyne Cree Nation, Deschambault Lake Community, in Saskatchewan.

Please contact earth@yourcier.org for any questions or comments on these Guidebooks.

The objectives of these resources are to provide user-friendly and culturally appropriate climate change and adaptation guidebooks to help First Nations through planning to avoid, minimize or adapt to impacts caused by climate change. The Guidebooks outline a planning process and framework for decision making that allows wide application, local adaptation and on-going modifications.

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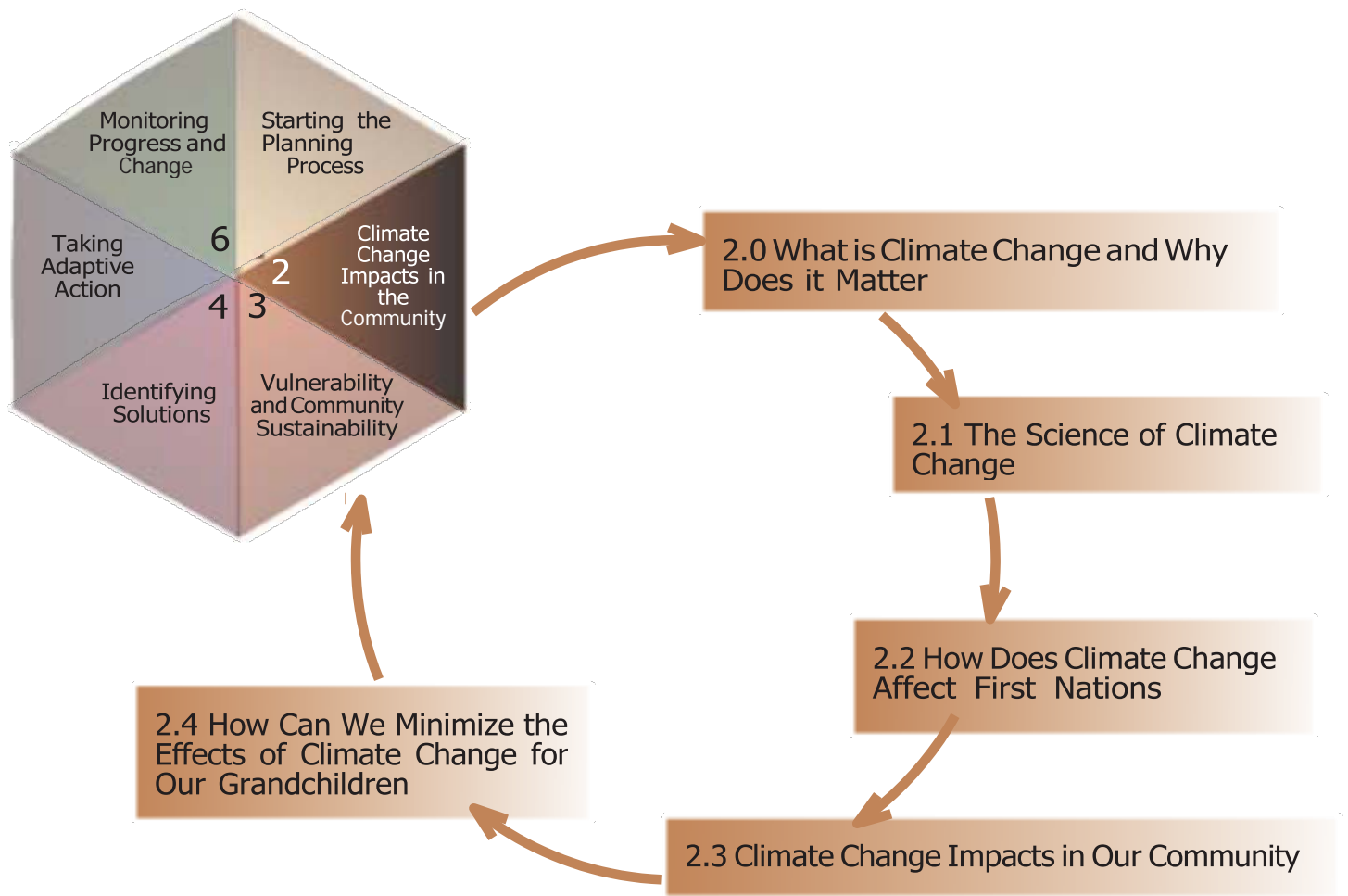


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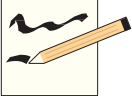











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Understanding the Planning Process

The Guidebooks include activities and information to work through the planning process. Each book leads into the next steps in the process.



Symbols used in the Guidebooks

					
Activity	Meeting	Environmental	Economic	Winter	Summer
					
Materials	Recommended Group	Social	Cultural	Spring	Fall

2.0 What is Climate Change and Why Does it Matter?

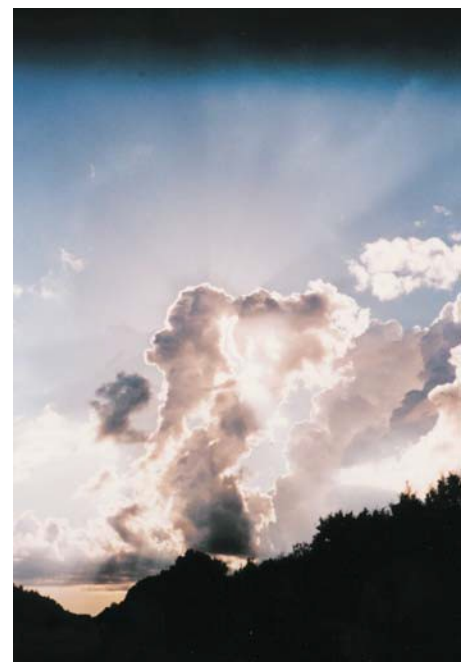
The word "climate" refers to long-term weather patterns that are typical of a region, including rainfalls, temperatures, humidity, dryness, storms, and winds. When changes occur in the weather that a region normally experiences, it is called "climate change".

When we speak about global climate change, we are referring to changes in the climate of the Earth as a whole. For thousands of years the average temperature for the whole Earth's atmosphere has remained around a comfortable 15°C. This average temperature is increasing and the Earth is experiencing a general warming trend. This trend is what people are referring to when they use the phrase "global warming".

Why is it a Concern?

The gases in the atmosphere that act like a cozy blanket and keep the Earth warm are called greenhouse gases (GHGs). When the amount of these gases increase, the Earth gets warmer. When they decrease, the Earth gets cooler. These gases are naturally present in the atmosphere. The problem is that human activities are adding too many natural GHGs and some harmful human-made GHGs to the atmosphere, which is causing the Earth's temperature to increase faster than science has observed in the Earth's history. Elders and others that live on the land are also seeing changes like the length of the winter season and the shortening of extreme cold snaps in winter.

It is normal for the climate to change. The concern is that over the last few decades the climate has been changing too quickly. Scientists vary in their thoughts on how much the Earth will warm, but they predict that in the next 100 years, the average temperature of the Earth will increase by 1.4-5.8°C. This would result in an average



temperature for the Earth's atmosphere of 16.4 - 20.8°C. Even small changes in the Earth's average temperature will result in big changes for all life on Earth. People living in coastal areas and in the Arctic will be affected by the warming the most.

People are part of the climate change issue because they are affected by and contribute to a changing climate. To be a part of the solution requires an understanding that the combined actions, good and bad, of more than 6.5 billion people really do make a difference.



Reeds, Katimic Lake, Manitoba



Badlands, Alberta



Limestone River, Manitoba



Cariboo, Wha Ti, Northwest Territories

2.1 The Science of Climate Change

What are the Effects of Climate Change?

Climate change will have far-reaching and unpredictable environmental, social and economic consequences. The effects of climate change will be felt globally, across the different regions of Canada, and in our own communities. Warmer temperatures will mean more severe weather events such as storms, lowered fresh-water levels, and sea-level rises. In some parts of the world there will be longer and more intense heat waves and droughts. Ecosystems will change. For example, it is predicted that with increased temperatures over the long term, that the prairies will expand and the boreal forest and tundra habitats will shrink. Human health will be affected as different diseases thrive in warmer temperatures. Economies that depend on the natural world to produce goods will need to adapt to the changing climate.

Canada relies heavily on its natural resources to create a good economy and support our way of life. Jobs in the natural resources sector such as farming, fishing, and forestry may have a difficult time adapting to effects of climate change such as changing seasons and extreme weather. It is important to note that climate change won't be the same across the different regions of Canada. Polar regions will likely warm more than regions closer to the U.S.A. border, and the Atlantic region may cool slightly. Coastal zones and the Arctic will be the most dramatically affected. For example, the Inuvialuit of Sachs Harbour have reported melting permafrost, increased snowfalls, longer sea ice-free seasons, and wildlife normally found in more southern areas near their community (The Inuit and Climate Change, Terry Fenge).

Climate change will also be felt locally in our own communities. Traditional activities such as hunting and gathering may need to adapt to changes in animal behaviour and plant growth as the climate changes.



Nelson River, Gillam, Manitoba



Particularly for those communities in the north, regular activities such as travel could be affected. For example, warming temperatures will shorten the length of time suitable for travel on winter roads.

Who is Talking About it?

Climate change is a global challenge. The Kyoto Protocol is a global plan with targets to reduce the greenhouse gas (GHG) emissions, from human activities such as industry and transportation, which contribute to global warming. Canada is a supporter of the Kyoto Protocol through Project Green, a plan to create a healthier environment and a stronger economy.

The current (2006) Aboriginal and Northern Community Action Program (ANCAP) is a program directed and managed by INAC in partnership with Natural Resources Canada (NRCan). The ANCAP is aimed at engaging Aboriginal communities to become active partners in actions to reduce GHG emissions through improved energy efficiency and sustainable transportation. Each region of Canada has an ANCAP Pathfinder designated to assist Aboriginal communities in reducing their GHG emissions.

Provinces and municipalities are coming up with additional strategic plans to reduce GHGs in their towns and cities. Communities, schools, and families are recognizing that individual actions can affect climate change and are participating in programs to help reduce GHGs and learn about climate change.



Eating Berries, Labrador



Gillam, Manitoba

2.2 How Does Climate Change Affect First Nations?

First Nations can have very different experiences when dealing with the effects of climate change. CIER has worked with several First Nations throughout Canada and has heard many different stories and observations about the changes First Nations are witnessing on their lands.

A Storm in Poplar River First Nation, Poplar River, Manitoba

A man from Poplar River First Nation in Manitoba was fishing on Lake Winnipeg with his son. In the distance he saw a storm emerging on the horizon. He was taught by his father how to estimate the amount of time he had to pull the nets into the boat and get off the water before the storm arrived, but the storm came up on them much faster than he had estimated. It was unlike any other storm he had experienced with his father and the boat capsized. Based on his descriptions and the damage also experienced in Poplar River (a chain link fence was blown down, a swath of downed trees,



Poplar River, Manitoba

a roof was ripped off a house) the storm may have been a straight-line wind. Luckily the man and his son were wearing life jackets and were able to swim to shore. Many climate change experts believe one of the affects of climate change will be an increase in the number and frequency of extreme weather events. This story also tells us that the Indigenous Knowledge related to weather that First Nations use while on the land may not be as reliable as it used to be because the effects of climate change are happening so quickly. Similar storms have occurred in Poplar River since and the social impacts include an increased level of anxiety amongst people who had frightening experiences the first time and a decrease in the safety of Poplar River members while boating on Lake Winnipeg. Coupled with this, is the increase of operations and maintenance budgets to repair damaged buildings and structures.

Forestry and Spruce Budworm

Some First Nations with forestry operations on their lands are noticing an increase in the spread of spruce budworm. The spruce budworm is an insect that feeds on the buds and needles of balsam fir and white and black spruces. Trees can become weakened to other insects and disease if there is a repeated loss of new buds and needles over a few years. This increased spread of spruce budworm could be triggered by a decreased winterkill of the insect because we are not



Spruce Budworm.

Photo Credit: JosephOBrien, USDA Forest Service-NRCan website.

experiencing the long cold winters we did in the past. Another factor that could be contributing to the spread may be that the trees are heat or water stressed during the summer, which makes the trees more susceptible to insects like the spruce budworm and other diseases. The economic impacts are negative as any increase in diseases and pests means a loss in the volume and quality of wood for sale.

Mild Winters in Rolling River First Nation, Rolling River, Manitoba

Rolling River First Nation in Manitoba has observed that mild winters are causing unusually high amounts of wear and tear on the community roads. The First Nation has experienced an increase in the number and severity of potholes and other signs of poor road condition. This is likely an effect of winter temperatures fluctuating above and below the freezing point more frequently. Milder winter conditions have resulted in daytime temperatures above freezing that then drop to below freezing overnight. Overtime, the increase in the freeze-



Northern winter road.

thaw cycle causes the roads to deteriorate more quickly than they used to. These poor road conditions have resulted in more wear and tear on water delivery trucks that are easily damaged when fully loaded and heavy with water. The economic impacts are increased costs for road repairs and the operations and maintenance of both water delivery trucks and the road maintenance equipment. This is a significant burden when budgets are already stretched to their limits. On the positive side it highlights the opportunity for community members to engage in no-cost and low-cost water conservation measures within their homes to help with the problem.

Winter Roads Access to First Nation Communities

Many First Nations located throughout Canada's north rely on the winter road systems during the winter months to transport essential goods and supplies. Many of these Nations have been negatively affected by mild winters (e.g. in 2005-2006) because of the difficulty in establishing winter roads. There are many elements required for a winter road to be constructed. One of these is a sustained and prolonged period of time with below freezing temperatures. This is especially true for winter road systems



Degraded winter road conditions.

that cross fast flowing rivers or large waterbodies. Milder winters jeopardize the feasibility of winter roads. For example, Eabametoong First Nation in Ontario has been without a winter road since 2003. Although there are other contributing factors, milder and shorter winters compound these and have resulted in limited access to the First Nation. Without winter road access First Nations are reporting that other, more expensive means are required to transport essential equipment and supplies into the communities. This has caused social impacts like shortages in food, fuel, construction material and supplies and economic impacts such as an increase in the cost of goods and services.

Access to the Land for Work, Recreation and Cultural Purposes

Finally, the changes we are seeing in the ice thickness and texture is also affecting those who rely on snowmobiles to access the land for work, recreation and cultural purposes. While completing work and travel in Northern Ontario in January and February, a CIER employee heard about four incidences of snowmobiles going through the ice in four separate First Nations. Again there may have been other factors contributing to some of these instances but the changes in weather and ice condition are likely also be part of the problem. The time of year when it is safe to travel on rivers, lakes and streams is changing and the safe routes



Snowmobiles are used for daily transportation in some northern communities.

people travelled for generations are shifting. Again, this story speaks to the challenges of relying on Indigenous Knowledge when so many changes are happening in a very short period of time and are resulting in negative social and economic impacts.



2.3 Climate Change Impacts in Our Community

Most First Nations in Canada have seen the effects of climate change directly. Now is a good time to have a discussion with the Working Group about some climate change basics (where you review the last two sections 2.1 and 2.2 together) and about local observations of climate change. This could be a simple brainstorming session with the Working Group where you think about the different seasons and how things have changed over time. You can use some of the observations from other First Nations in Canada to help get you started. People may want to start talking about how these changes have impacted what people do in the community. You could set up your paper or whiteboard so that you can separate out common activities and connect the observations to the activities.

Meet with



Brainstorm Local Observations of Climate Change



- chart paper
- different colour markers - index cards
- tape or sticky tack (for the wall)

During a brainstorming activity people share their ideas without judgement, which means that there are no wrong answers. The idea behind the activity is to get as much information discussed and written up as possible in a short period of time (e.g. on chart paper or a whiteboard). The information raised during a brainstorming session can usually be grouped into common themes or categories if you look for the similarities between some of the ideas. You can do this grouping with the Working Group or afterwards if time is short.



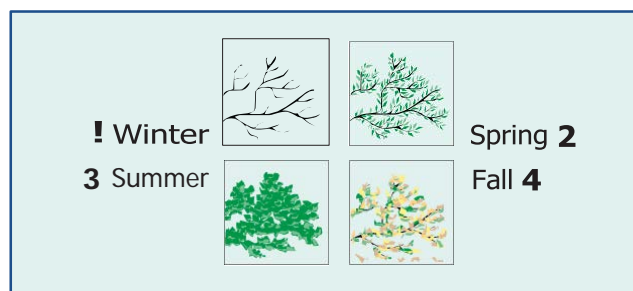
Deschambault Lake Community
Working Group Meeting

1 Ask people to think about the changes they have seen in the climate during the winter.

- If the group works well together and are respectful of each other's time to talk you can have an informal discussion where people speak out as ideas come to them. You can also do a roundtable discussion.
- Another option is to give people index cards and ask people to write down the changes they have seen on these and then put them up on the wall for everyone to see.
- Using cards for brainstorming makes grouping common themes together easy because you can move the cards around on the wall

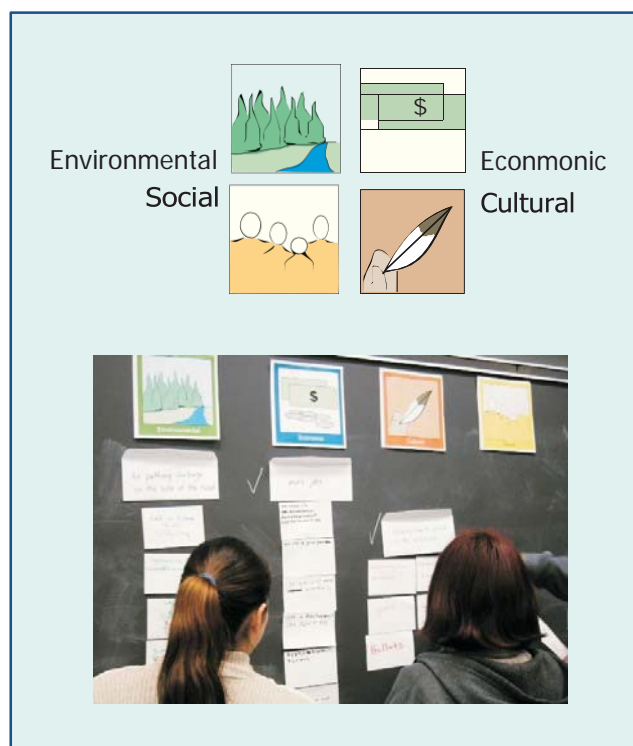
2 Ask people to think about the changes they have seen in the climate in the other seasons.

- Go through each one: 1 winter, 2 spring, 3 summer, and 4 fall.



3 After you have talked about all four seasons, ask people to think about how these changes have impacted the things people do in the community. Talk about impacts on the community's environment, economy, society, and culture.

- If you are using chart paper you can add these ideas in a different colour near the change it is associated with.
- If you are using index cards give people a different colour marker or pen so that the impacts and the observations are easily separated when you look at the cards on the wall. You can put up each impact card next to or near the observation(s) the change is associated with.



Meetings or discussions with other people in the community are important at this stage. Other people have important knowledge and information on climate change observations and on the impacts of these changes. Gathering many people's knowledge will help to provide you and the Working Group with a better picture of the community's reality. Meeting with committees or associations of people who work on the land or water (e.g. trappers, hunters, fishers), who use nature's resources (e.g. for medicines, for food, for ceremonies), and who have traditional knowledge will expand your understanding of climate change and your First Nation.

Set up a



- 1 Use the same brainstorming exercise with these groups OR interview people in small groups or individually.
 - The interviews can be informal discussions. Invite a group of Elders for coffee and baking, or visit people in their homes. Ask to attend one of the meetings of one of the associations you want to meet with and for time on their agenda.
- 2 Think about the questions you want to ask people, and talk about these with the Working Group members, so that you remember to ask similar questions to the different people.

Talking to many people about the same issues helps to determine the credibility of the information and can help to prioritize planning. For example, if one person talks about seeing certain animals late in the fall (e.g. skunks when they are usually hibernating) in one particular area this could be interesting but just the unusual behaviour of one or a few animals. If, however, several people have seen this, in different areas of the territory, or over several years, this could be more of a concern (e.g. the weather has stayed too warm) and is likely more reliable information. You and the Working Group can use this Indigenous Knowledge to start thinking about how these changes are impacting the community's sustainability and identify issues as priorities for planning.



Discussion group, Sioux Valley Dakota Nation

2.4 How Can We Minimize the Effects of Climate Change For Our Grandchildren?



Although these Guidebooks focus on adapting to climate change, we can also take actions to reduce the effects of climate change on future generations. Reducing or eliminating negative effects of something is called mitigation. We can mitigate the effects of climate change by reducing the greenhouse gas emissions in the atmosphere. Examples of mitigation for climate change include improving the energy efficiency in building (to decrease the amount of fossil fuels needed for heating and cooling), or increasing the use of sustainable transportation - like walking, biking, car pooling - in your community (to decrease the amount of fossil fuels burned for transportation). Actions you take now to reduce greenhouse gas emissions can help your grandchildren by reducing the effects of climate change that they will experience. These actions won't result in immediate changes so communities everywhere need to be thinking about both adaptation and mitigation.

The following table shares examples of mitigation ideas generated by First Nation participants in CIER's climate change workshops. Think about these ideas and if they could be implemented in your community.



Students from Deschambault Lake Community.



Students from Sioux Valley Dakota Nation.

Examples of Other First Nation's Ideas for Mitigation

Mitigation Ideas	Is it possible in your community?	Mitigation Ideas	Is it possible in your community?
Turn off the lights		Plan for community infrastructure	
Build energy efficient buildings		All weather roads	
Buy energy efficient appliances		Food supply planning	
Insulate your house: Caulking		Community garden/ home gardens/ greenhouses	
Use local materials		Increased reliance on traditional foods (fish, deer, moose, etc.)	
Geothermal heat		Use less water	
District heating		Low flush toilets: repair leaky taps	
Reuse and recycle		Ice monitoring and community awareness	
Use renewable energy (wind power, solar power, biomass)		Emergency planning (e.g. for severe weather and impacts such as building damage)	
Carpool, walk, take the bus		Canoe (instead of motor boat)	
Other ideas?		Other ideas?	

References

Fenge, Terry. (2001). "The Inuit and Climate Change". Isuma (Vol. 2) No. 4, Winter. Les Presses de l' Université de Montreal, on behalf of the Policy Research Initiative.

Notes

